Remarks

The Final Rejection rejects claims 1, 4, 9-10 and 14 as anticipated by the Yoshida reference. This rejection finds a halftone screen in Yoshida at column 3, lines 19-28 (claims 1 and 14), column 3, lines 16-18 (claim 4) and figure 5 and column 2, lines 18-22 (claim 9). But those are not about a halftone screen; they are only about correcting the skew of a printhead.

Correcting the skew of a printhead does not necessarily involve a halftone screen. Where the printing is not to have shades of gray or shades of color, a halftone screen is simply not involved. Yoshida only suggests printing solid colors, not shades of colors.

The only explicit statement in Yoshida as to what is being printed is a statement indicating that yellow printing and magenta printing are to be in similar patterns, which of course, yields a solid color or colors unless the pattern is that of a halftone. The Yoshida statement is found at column 2, lines 65 to 67, which read: "The white circles on the paper represent dots printed by the preceding yellow head 43." Followed at col. 3, lines 4 to 5 which read: "The magenta image consists of similar image lines." These statements are about Fig. 5, which shows a solid pattern, not a halftone pattern.

As detailed at page 8, lines 14 to 21 of the specification, halftoning involves allowing for shade variations by turning on only a certain percentage of pels. Halftoning is well established. Halftoning is often said to produce gray scale images. Halftone patterns involved can be called dither patterns. Halftoning necessarily involves a unique pattern separate from the pattern of solid colors or text. Nothing in Yoshida suggests such a unique pattern. Yoshida is simply not about halftoning.

Even if Yoshida included halftoning, which it does not, it certainly does not address reducing artifacts resulting from halftoning. The Final Rejection takes the position that such

modification is inherent to the printing of Yoshida, but the printing of solid color could not be inherent to halftoning as it does not involve halftoning at all.

This specification apparently has complete novelty to teaching when and how to use halftone screening to reduce undesirable print artifacts.

Claims 2-3, 5-8 and 15-16 are rejected as obvious over Yoshida in view of the Cullen reference. Yoshida is cited for correcting skew in image date. Cullen is cited for identifying the center of text characters and correcting skew by shifting separate blocks.

Such application of Cullen can not stand because Cullen does not preserve individual characters. As shown in Figure 2c of Cullen and stated at column 5, lines 6 - 21, the scanned document is first compressed. The compression of Cullen is the logical OR result of neighboring data in which a single black in the OR operation renders the result black (col. 6, line 40 – col. 7, line 13). Figure 3 of Cullen is illustrative. Black in any pel location in lines 300-303 produces black, as shown in 312. Similarly, in Figure 5 of Cullen, lines 501 and 502 create rectangle 530, which is bounded only when the data in both lines are white. Rectangle 522 is defined by black 515 only in line 502.

It is such rectangles that Cullen rotates to correct skew. Accordingly, Cullen does not preserve text at all during skew correction. Cullen is about defining blocks of text and blocks of images as an aid to subsequent character recognition. The rectangles deskewed by Cullen do not contain actual text and certainly are not about finding a center line of characters, which is the basis for applying Cullen in the subject rejection.

Moreover, in discussing skew Cullen states: "In any event, each rectangle is the boundary of a set of connecting patterns (pixels) that form a word or a letter." (col. 13, lines 31-33). Thus, Cullen does not suggest locating the center of a character for purposes of correcting skew.

With respect to claim 6, Yoshida is further cited in the Final Rejection as teaching continuous tone data. Column 2, lines 17-19 of Yoshida are cited for the teaching continuous tone data. However, these lines do not specify continuous tone data. They simply say "data" and data can be solid color data. As discussed in the foregoing with respect to the rejection of claim 1, the only data in Yoshida explicitly indicated is solid color data.

With respect to claim 7, Yoshida is applied for applying a halftone screen. As discussed in the foregoing with respect to the rejection of claim 1, Yoshida does not teach a halftone screen.

In summary, the reliance on Cullen in this rejection of claims 2-3, 5-8 and 15-16 is not supported as all of the claims require an identification of the center of a text character and Cullen has no teaching at all relevant to locating the center of a text character. In addition, reliance on Yoshida with respect to claim 6 with respect to continuous tone data and claim 7 with respect to halftone screen is not supported as discussed in the foregoing.

Claims 11-13 are rejected as obvious over Yoshida in view of Cullen and the Saund reference. Yoshida is cited for correcting skew in continuous tone data. Cullen is cited for identifying the center of text characters and correcting skew by shifting individual blocks. Saund is cited for de-warping image data, which is applied as teaching for characters bridging a block boundary, shifting a minority portion of the text character located in an adjacent block not present in the associated block by an amount corresponding to a difference between a skew correction factor corresponding to the associated block and a skew correction factor corresponding to the adjacent block.

As discussed in the foregoing with respect to claim 2, such applicationof Cullen is not supported because Cullen has no teaching at all relevant to locating the center of a text character.

This rejection also cites column 14, lines 51-57 of Cullen for inherent skew correction if a text character bridges a block boundary. In response, however, it is respectfully submitted that column 14, lines 51-57 in no way discuss rotation of part of a rectangle, and the rectangles of Cullen do not bridge characters. More fundamentally, independent rotation of two blocks which bridge a character would seem to describe the problem this invention solves, not the solution of this invention.

Finally, Saund is cited for shifting a minority portion of each text character. In response, however, Saund is about reading text from a bound document. It employs information of the document shape to de-warp. This does not at all suggest deskewing by associating a text character with an image block as claimed.

With respect to claim 12, Yoshida is cited for applying a halftone screen. As discussed in the foregoing with respect to the rejection of claim 1, Yoshida does not teach a halftone screen.

Also, as discussed in the foregoing with respect to claim 6, the only data in Yoshida explicitly indicated is solid color data.

The desirability is not recognized in any of the references of deskewing a character partially in one deskew block based on the deskew factor of another block so that a character is not distorted by being partly deskewed in one amount and partly deskewed in another amount.

Accordingly, reconsideration is respectfully requested, followed by allowance of claims 1 through 16, all of the pending claims.

Respectfully submitted,
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